

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: Gregory D. U'Ren

Serial No.:

Filed:

For: Independent Control of Polycrystalline
Silicon-Germanium in an HBT and Related
Structure

Examiner:

Group Art Unit:

This is a Rule 1.53(b) divisional of parent
U.S. Application entitled "Method for Independent
Control of Polycrystalline Silicon-Germanium in a
Silicon-Germanium HBT and Related Structure,"
Serial No. 09/667,274 filed September 22, 2000
and assigned to the assignee of the present
application.

PRELIMINARY AMENDMENT TO DIVISIONAL APPLICATION

Honorable Commissioner of
Patents and Trademarks
Washington, D. C. 20231

Dear Sir/Madam:

This amendment is directed to the accompanying 37 CFR §1.53(b) divisional application.

This divisional application is classified in Class 257, Subclass 200. The pending parent
application Serial No. 09/667,274 is classified in Class 438, Subclass 47 in Art Unit 2823.

Please enter the following amendments in the present Rule 1.53(b) divisional application.

In the Title:

Please delete the title "Method for Independent Control of Polycrystalline Silicon-Germanium in a Silicon-Germanium HBT and Related Structure" and replace with
-- Independent Control of Polycrystalline Silicon-Germanium in an HBT and Related Structure --.

In the Specification:

After the title, please insert the sentence: --This is a divisional of application Serial No. 09/667,274 filed September 22, 2000.--

In the Claims:

Please cancel claims 1-17.

Please add the following new claims:

--25. A structure comprising:

a single crystal region situated over a first area wherein said single crystal region is grown in a kinetically controlled growth mode at a first temperature and a first pressure of a precursor gas;

a polycrystalline region situated over a second area wherein said polycrystalline region is grown in a mass controlled growth mode at said first temperature and said first pressure concurrently with said single crystal region.--

--26. The structure of claim 25 wherein said first area comprises an exposed area of silicon and said second area comprises a non-exposed area.--

--27. The structure of claim 25 wherein said precursor gas comprises germanium and hydrogen.--

--28. The structure of claim 25 wherein said single crystal region comprises single crystal silicon-germanium and said polycrystalline region comprises polycrystalline silicon-germanium.--

--29. The structure of claim 25 wherein said single crystal region is in contact with said polycrystalline region.--

--30. The structure of claim 25 wherein said single crystal region is a base in a heterojunction bipolar transistor.--

--31. The structure of claim 25 wherein said polycrystalline region is a base contact in a heterojunction bipolar transistor.--

--32. The structure of claim 25 wherein said first temperature is approximately 650° C.--

--33. The structure of claim 25 wherein said first pressure is selected to promote said kinetically controlled growth mode over said first area and said mass controlled growth mode over said second area.--

--34. The structure of claim 33 wherein said first pressure is approximately 100 Torr.--

--35. The structure of claim 25 wherein said polycrystalline region grows approximately twice as fast as said single crystal region.--

--36. A structure comprising:

a single crystal silicon-germanium base having a first junction with a collector and a second junction with an emitter wherein said single crystal silicon-germanium base is grown in a kinetically controlled growth mode at a first temperature and a first pressure of a precursor gas; a polycrystalline silicon-germanium base contact in electrical contact with said single crystal silicon-germanium base wherein said polycrystalline silicon-germanium base contact is grown in a mass controlled growth mode concurrently with said single crystal silicon-germanium base at said first temperature and said first pressure.--

--37. The structure of claim 36 wherein said precursor gas comprises germanium and hydrogen.--

--38. The structure of claim 36 wherein a deposition ratio of said polycrystalline silicon-germanium base contact to said single crystal silicon-germanium base is approximately 2 to 1.--

--39. The structure of claim 36 wherein said first temperature is approximately 650° C.--

--40. The structure of claim 36 wherein said first pressure is approximately 100 Torr.--

--41. The structure of claim 36 wherein said single crystal silicon-germanium base comprises approximately 8% germanium and approximately 92% silicon.--

--42. The structure of claim 36 wherein said polycrystalline silicon-germanium base contact has a base contact resistance value of approximately 400 ohms.--

--43. The structure of claim 36 wherein said single crystal silicon-germanium base is grown over and exposed area of silicon and said polycrystalline silicon-germanium base contact is grown over a non-exposed area.--

--44. The structure of claim 36 wherein said collector comprises single crystal silicon.--

--45. The structure of claim 36 wherein said emitter comprises polycrystalline silicon.--

REMARKS

This is a divisional application of the pending parent application, Serial No. 09/667,274 filed September 22, 2000. This divisional application is filed during the pendency of the parent application. By this preliminary amendment, applicant has canceled claims 1-17 filed in the parent application and has added new claims 25-45. Accordingly, claims 18-45 remain in the present Rule 1.53(b) divisional application. Consideration and examination of pending claims 18-45 are respectfully requested.

A true and correct copy of the parent application, including the specification, drawings and claims, as originally filed, is enclosed. Also enclosed is a true and correct copy of the combined declaration and power of attorney as filed in the parent application. Please direct all correspondence and communications to the undersigned attorneys of record.

Respectfully submitted,
FARJAMI & FARJAMI LLP

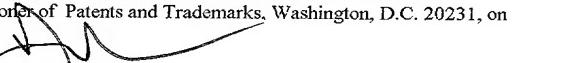


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Alfred Avellana

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